

**Archaeological Records Check:
US 31 Plymouth to South Bend Project,
Marshall and St. Joseph Counties, Indiana.**

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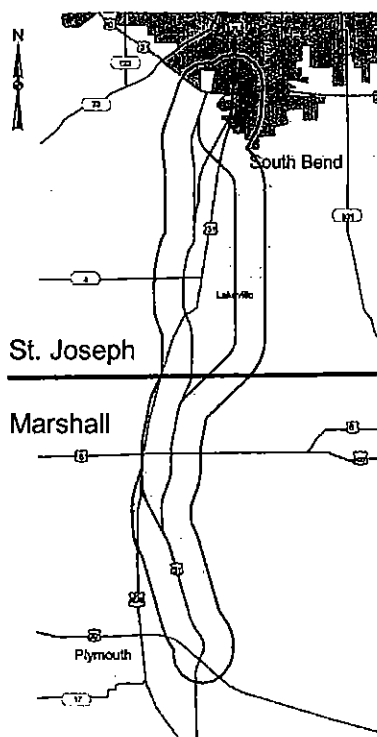
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LANDMARK

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INTRODUCTION

In response to a request from Bernardin - Lochmueller & Associates, Inc., an archaeological records check has been conducted for the US 31 Plymouth to South Bend project in Marshall and St. Joseph Counties, Indiana. The Study Area for this project is located in the extreme north-central part of Indiana between the town of Plymouth and the city of South Bend. There are three preferred alternatives under consideration for the project; Alternatives Cs, Es, and G-C. These alternatives are located on portions of the USGS 7.5 minute series Lakeville, La Paz, Plymouth, South Bend East, South Bend West, and Wyatt, Indiana topographic quadrangles.

The working alignment of Alternative Cs is approximately 19.5 miles (31.4 km) long and involves roughly 966 acres (391 hectares) of land (Figure 1). It is located in portions of Sections 25, 26, 27, 34, and 35, Township 37 North, Range 2 East; Sections 3, 10, 15, 22, 27, and 34, Township 36 North, Range 2 East; Sections 15, 22, 27, 28, 33, 34, and "Michigan Road Grant" Sections 1 and 2, Township 35 North, Range 2 East; and Sections 4, 9, 15, 16, 22, 27, 34, and 35 Township 34 North, Range 2 East.

The working alignment of Alternative Es is approximately 20 miles (32.2 km) long and involves roughly 904 acres (366 hectares) of land (Figure 2). It is located in portions of Sections 25, 26, 35, and 36, Township 37 North, Range 2 East; Sections 2, 10, 11, 15, 22, 27, and 34, Township 36 North, Range 2 East; Sections 15, 22, 27, 28, 33, 34, and "Michigan Road Grant" Sections 1 and 2, Township 35 North, Range 2 East; and Sections 4, 9, 16, 22, 27, 34, and 35 Township 34 North, Range 2 East.

The working alignment of Alternative G-C is approximately 20.4 miles (32.8 km) long and involves roughly 998 acres (404 hectares) of land (Figure 3). It is located in portions of Sections 25, 26, 27, 34, and 35, Township 37 North, Range 2 East; Sections 2, 3, 11, 12, 13, 24, 25, and 36, Township 36 North, Range 2 East; Sections 1, 11, 12, 14, 15, 22, 27, 28, 33, 34, Township 35 North, Range 2 East; and Sections 4, 9, 15, 16, 22, 27, 34, and 35 Township 34 North, Range 2 East.

ENVIRONMENTAL SETTING

Physiography

The project area is located within the Northern Moraine and Lake physiographic region, which has been divided into further physiographic regions due its variety of glacial and associated postglacial landforms (Schneider 1966). The majority of the project area lies within the Steuben Morainal Lake Area with a small area near the city of South Bend being within the Kankakee Outwash and Lacustrine Plain (Schneider 1966).

Schneider (1966) describes the Steuben Morainal Lake Area as a region of complex topographic expression and physiographic history, often with relatively rugged relief. There are a great variety of existing landforms that are all of glacial or postglacial origin and were produced by the advance and related activity of the Huron-Saginaw and

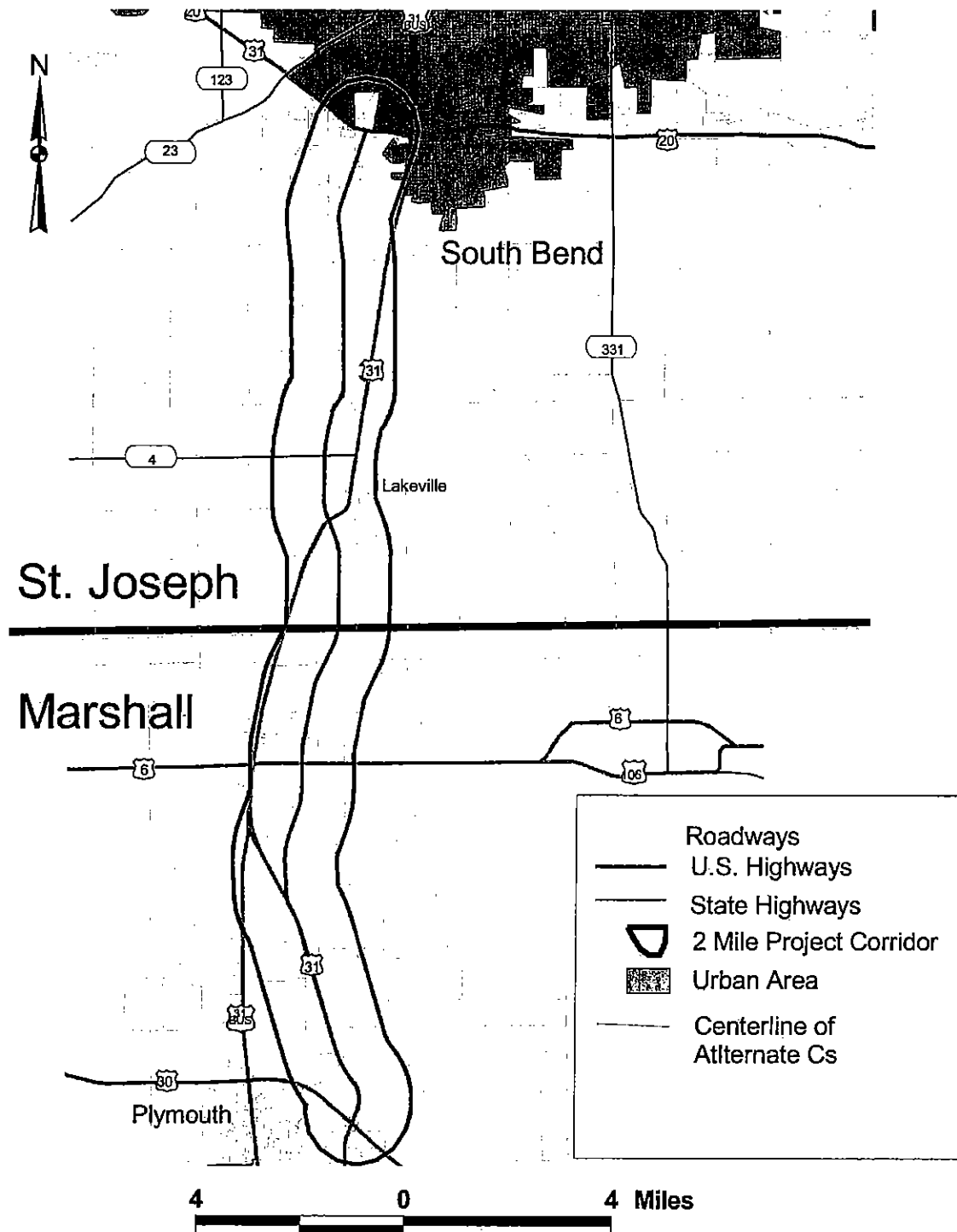


Figure 1: Map Showing Location of Alternative Cs

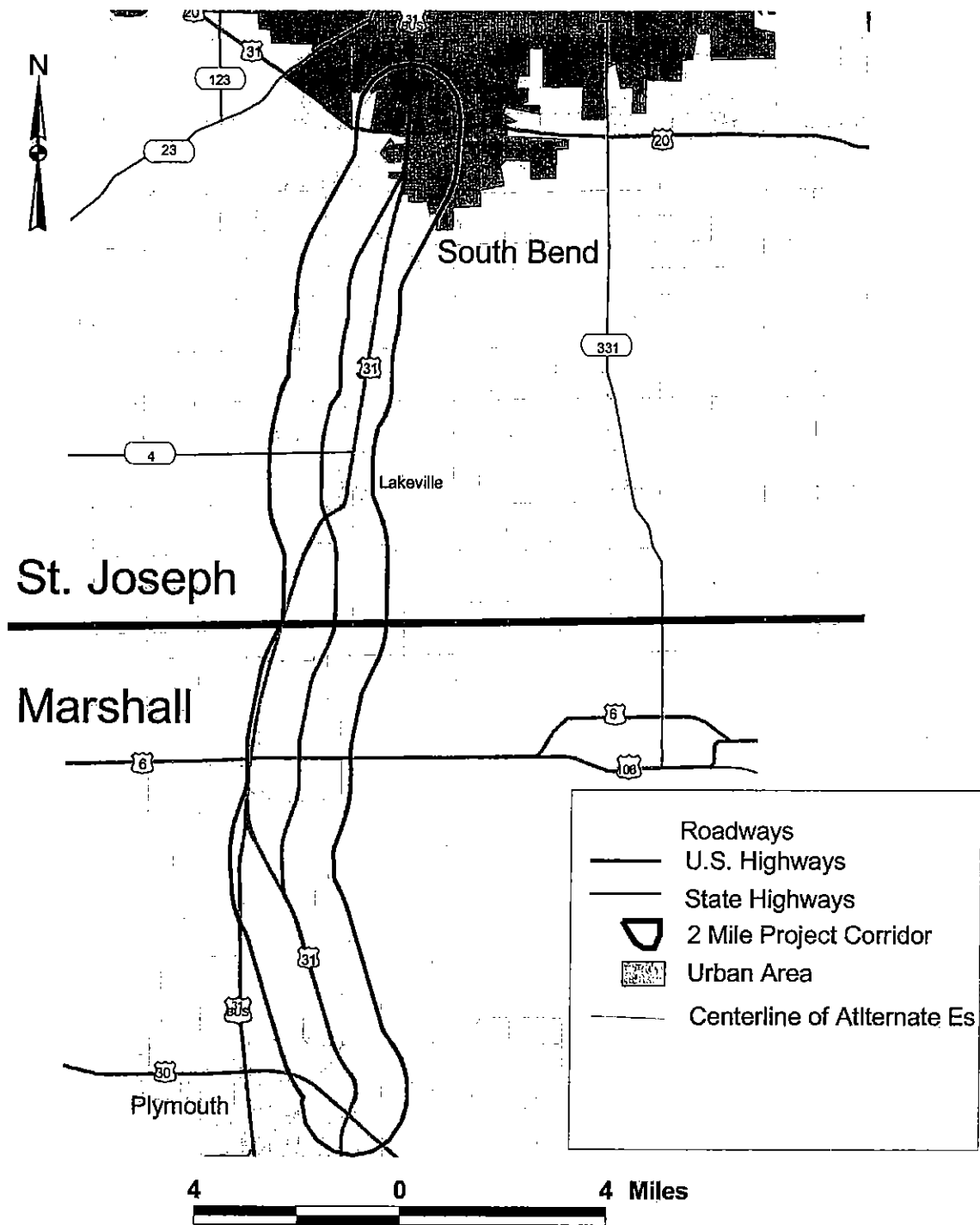


Figure 2: Map Showing Location of Alternative Es

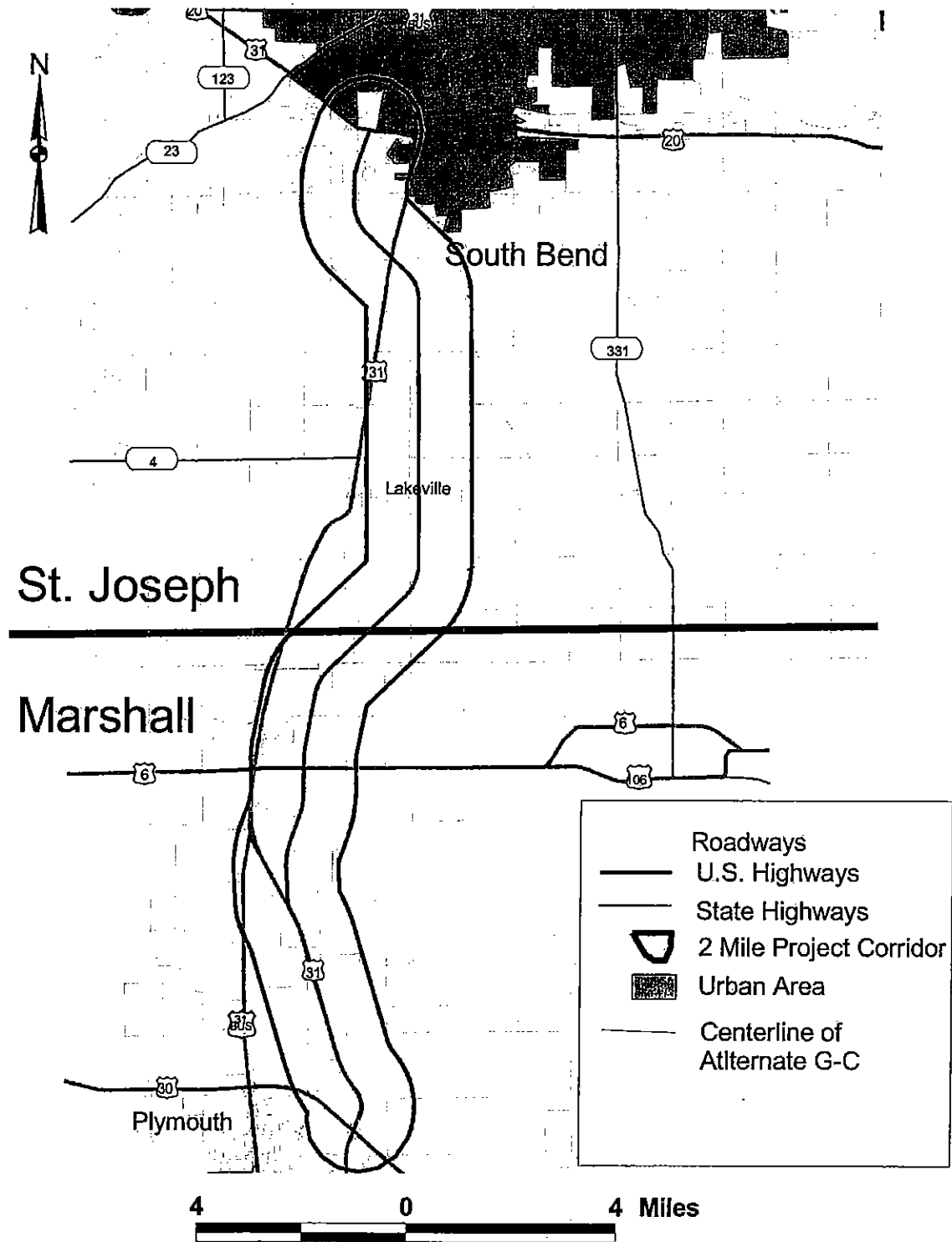


Figure 3: Map Showing Location of Alternative G-C

Ontario-Erie Lobes of the Wisconsin ice sheet about 15,000 years ago. Knob-and-kettle type end moraine topography is the most evident, with many of the knobs being kame complexes. The kettle depressions are the origin of the thousands of lakes and peat bogs characteristic of northern Indiana. The area also contains abundant meltwater channels, as well as small lacustrine plains and occasional sand dunes (Schneider 1966:52-53).

The Kankakee Outwash and Lacustrine Plain is described as a vast area much of which is low, poorly drained, and underlain mostly by sand (Schneider 1966). The majority of the sand was deposited as outwash by glacial meltwaters derived from melting ice at several times during the late Wisconsin time. Some of the outwash appears to have been deposited in standing water, suggesting a lacustrine origin, while most of the outwash material was deposited in the form of broad valley trains and outwash plains that are related to the present day St. Joseph, Kankakee, Tippecanoe, and Iroquois Rivers. A large part of the original topography of this region has been greatly modified by the wind blowing, reworking, and redistributing the sand. This resulted in a veneer of eolian deposits over the outwash material that formed virtually featureless sand plains or in other places the piling of sand dunes in all shapes and sizes (Schneider 1966: 52).

Homoya et al. (1985) show the project to be within the Northern Lakes Natural Region, which is identified by the presence of numerous freshwater lakes of glacial origin. This region was invaded from the northwest by the Lake Michigan Lobe of the late Wisconsin ice sheet, from the northeast by the Saginaw Lobe, and from the east by the Erie Lobe. As a result, the area is now covered with a thick and complex deposit of glacial material, which exceeds 450 feet in places. The glacial topography is complex and characterized by knobs, kettles, kames, valley trains, and outwash plains. The natural community types are numerous and include bog, fen, marsh, prairie, sedge meadow, swamp, seep spring, lake, and various deciduous forest types. Bogs are more numerous here than in other natural region within the state. In addition, swamp communities commonly border lake and bog sites, while areas of marsh are commonly associated with lake communities. The forest types consisted of oak-hickory and beech-maple (Homoya et al. 1985:252-253). Casebere (1997) states that the juxtaposition and blending of these numerous and variable natural communities created a great diversity of plant and animal life in this region.

Geology

North-central Indiana is underlain by Upper Devonian to Lower Mississippian-aged rocks and is a part of the Michigan Basin. The bedrock in this area consists of a nearly continuous sequence of brown, black, and green shales, which belong to the Antrim, Ellsworth, and Sunbury Formations. These rocks become thicker northward as they slope down dip into the Michigan Basin and thin out to the south and southwest along the flank of the Kankakee Arch (Howe 1997, Camp and Richardson 1999). There are no natural exposures of these rocks in northern Indiana due to the thick covering of glacially derived material.

The unconsolidated surface deposits found within the Study Area are Quaternary in age and were formed during the Pleistocene epoch. The project lies within that portion of Indiana that was extensively worked by successive episodes of Wisconsin glaciation. As discussed above, this area was affected by the advance and retreat of the Huron-Saginaw and Ontario-Erie Lobes of the Wisconsin ice sheet. Therefore, these deposits were derived from eolian, or windblown, loess and sand, glacial outwash, and recent alluvial river channel and floodplain deposits. Both Marshall and St. Joseph Counties produce gravel and sand for aggregate purposes from the glacial drift deposits (Wayne 1966, Melhorn 1997, Camp and Richardson 1999).

Deutchman and Dorwin (1979) note that the glacial outwash deposits would have provided the prehistoric inhabitants of the area plentiful chert cobbles for the use in stone tool manufacturing. Cantin (1994) shows that there are no known chert outcrops, or even chert-bearing formations, near the Study Area and states that gravel cherts are often overlooked in their role as local prehistoric lithic resources.

The numerous bogs and lakes created in northern Indiana during the Late Pleistocene have produced peat and marl deposits of commercial quality (Wier and Patton 1966, Camp and Richardson 1999). Marl and peat are common organic sediments found in glacial lakes and swamps. These sediments began to accumulate as the last of the glacial ice melted in this region.

Marls are soft calcareous muds that commonly contain fossil remains. This material was used as flux in smelting iron from bog ore in Mishawaka in the 1830's and was also used to make cement. In 1877 South Bend was the site of the first successful manufacturer in the country of portland cement from a mixture of marl and clay. Marls are used today as agricultural lime to reduce the acidity of soils (Wier and Patton 1966, Camp and Richardson 1999).

Peat is partly decayed plant material that when buried eventually turns into coal. The major use of peat is to improve and lighten soils that are heavy with clay. It is also used as a conditioning agent and filler in some fertilizers, a component of potting soil, and as an absorbing material for environmental contaminants (Wier and Patton 1966, Camp and Richardson 1999).

Soils

Due to the fact that the Marshall and St. Joseph County soil surveys utilize somewhat different nomenclature and groupings with regards to the soil associations and soil types, each county's soils will be discussed individually. With respect to Marshall County, there are four soil associations mapped by the United States Department of Agriculture (USDA) within the project area. These include the Oshtemo-Owosso-Fox association, the Crosier-Brookston association, the Riddles-Metea-Wawasee association, and the Houghton-Adrian-Palms association.

Oshtemo-Owosso-Fox Association soils are deep and moderately deep, nearly level to strongly sloping, well drained, moderately coarse textured and coarse textured soils that are over sand and gravel and formed in outwash deposits. These soils are found on outwash plains and moraines (Smallwood 1980).

Crosier-Brookston Association soils are deep, nearly level, somewhat poorly drained and very poorly drained, medium textured soils that formed in glacial till. These soils are found on till plains and moraines (Smallwood 1980).

Riddles-Metea-Wawasee Association soils are deep, nearly level to strongly sloping, well drained, moderately coarse textured and coarse textured soils that formed in glacial till. These soils are found on moraines (Smallwood 1980).

Houghton-Adrian-Palms Association soils are deep, nearly level, very poorly drained soils that formed in organic material. These soils are found in bogs and on old lakebeds on till plains, outwash plains and moraines (Smallwood 1980).

There are four soil associations mapped by the USDA within the project area in St. Joseph County. These are the Crosier-Brookston-Milford association, the Hillsdale-Oshtemo association, the Houghton-Adrian-Palms association, and the Riddles-Miami-Crosier association.

Crosier-Brookston-Milford Association soils are deep, depressional and nearly level to gently sloping, and somewhat poorly drained to very poorly drained. These soils are found on till plains and lake plains (Benton 1977).

Hillsdale-Oshtemo-Chelsea Association soils are deep, nearly level to strongly sloping, and well-drained to excessively drained. These soils are found on till plains, moraines, outwash plains, and terraces (Benton 1977).

Houghton-Adrian-Palms Association soils are deep, depressional and nearly level, and very poorly drained. These organic soils are found on lake plains, outwash plains, and till plains (Benton 1977).

Riddles-Miami-Crosier Association soils are deep, nearly level to strongly sloping, and well-drained to somewhat poorly drained. These soils are found on till plains (Benton 1977).

The following tables list each soil type, by county, that is encountered within the working alignments for Alternatives Cs, Es, and G-C. Included in these tables are the drainage classification for each soil type, as well as their occurrence on landforms, and parent material.

Table 1: USDA Soil Types Mapped in the Working Alignments in Marshall County.

Symbol	Soil Type	Drainage	Landform	Parent Material
Ad	Adrian muck, drained	Very poor	Till plains and moraines	Organic material over sandy material
AuA	Aubbeenaubbee sandy loam, 0-2% slopes	Somewhat poor	Uplands	Glacial till
Bd	Brady sandy loam	Somewhat poor	Outwash plains	Outwash deposits
BoA	Bronson loamy sand, 0-2% slopes	Moderately well	Outwash plains	Outwash deposits
Br	Brookston loam	Very poor	Till plains and moraines	Glacial till
CtA	Crosier loam, 0-2% slopes	Somewhat poor	Uplands	Glacial till
Fc	Fluvaquents, loamy	Somewhat poor	Bottomlands	Alluvium
FsA	Fox sandy loam, 0-2% slopes	Well	Uplands	Outwash deposits
Gf	Gilford sandy loam	Very poor	Outwash plains	Sandy lacustrine and eolian deposits
HdB	Hillsdale sandy loam, 2-6% slopes	Well	Moraines	Glacial till
Ho	Houghton muck, drained	Very poor	Till plains and moraines	Organic material
Hp	Houghton muck, ponded	Very poor	Moraines and outwash plains	Organic material
MeB	Martinsville loam, 2-6% slopes	Well	Terraces and outwash plains	Outwash deposits
MgB	Metea loamy fine sand, 2-6% slopes	Well	Moraines	Glacial till
OsA	Oshtemo loamy sand, 0-2% slopes	Well	Moraines and outwash plains	Outwash deposits
OsB	Oshtemo loamy sand, 2-6% slopes	Well	Moraines and outwash plains	Outwash deposits
OsC	Oshtemo loamy sand, 6-12% slopes	Well	Moraines and outwash plains	Outwash deposits
OwA	Owosso sandy loam, 0-2% slopes	Well	Uplands	Glacial till
Pa	Palms muck, drained	Very poor	Till plains and moraines	Organic material
PdA	Pinhook sandy loam, 0-2% slopes	Poor	Outwash plains	Outwash deposits
Re	Rensselaer loam	Very poor	Uplands	Outwash deposits

Symbol	Soil Type	Drainage	Landform	Parent Material
RsA	Riddles sandy loam, 0-2% slopes	Well	Moraines	Glacial till
RsB	Riddles sandy loam, 2-6% slopes	Well	Moraines	Glacial till
RsC2	Riddles sandy loam, 6-12% slopes, eroded	Well	Moraines	Glacial till
RsD	Riddles sandy loam, 12-18% slopes	Well	Moraines	Glacial till
TyB	Tyner loamy sand, 2-6% slopes	Well	Uplands	Sandy lacustrine and eolian deposits
Wh	Washtenaw silt loam	Very poor	Moraines, till plains and outwash plains	Alluvium
Wt	Whitaker loam	Somewhat poor	Terraces and outwash plains	Outwash deposits

Table 2: USDA Soil Types Mapped in the Working Alignments in St. Joseph County.

Symbol	Soil Type	Drainage	Landform	Parent Material
Ad	Adrian muck, drained	Very poor	Till plains and moraines	Organic material over sandy material
Am	Alluvial land	Somewhat poor	Bottomlands	Alluvium
Au	Aubbeenaubbee sandy loam	Somewhat poor	Uplands	Glacial till
Bd	Brady sandy loam	Somewhat poor	Terraces and outwash plains	Outwash deposits
BeA	Brems fine sand, 0-2% slope	Moderately well	Outwash plains	Eolian sand deposits
Br	Brookston silty clay loam	Very poor	Till plains	Glacial till
ChA	Chelsea fine sand, 0-5% slopes	Excessive	Outwash plains	Eolian sand deposits
ChC	Chelsea fine sand, 5-10% slopes	Excessive	Outwash plains	Eolian sand deposits
CtA	Crosier loam, 0-2% slopes	Somewhat poor	Uplands	Glacial till
De	Del Rey silt loam	Somewhat poor	Lacustrine plains	Lacustrine deposits
GP	Gravel Pits	N/A	Disturbed	N/A
HdA	Hillsdale sandy loam, 0-2% slopes	Well	Till plains and moraines	Glacial till

Symbol	Soil Type	Drainage	Landform	Parent Material
HeC2	Hillsdale complex, 6-12% slopes, eroded	Well	Till plains and moraines	Glacial till
HeD2	Hillsdale complex, 12-18% slopes,	Well	Till plains and moraines	Glacial till
Hm	Houghton muck	Very poor	Till plains and moraines	Organic material
Ho	Houghton muck, drained	Very poor	Till plains and moraines	Organic material
La	Landes loam	Moderately well	Bottomlands	Alluvium
Mc	Marsh	Very poor	Moraines and outwash plains	Organic material
MeA	Martinsville loam, 0-2% slopes	Well	Terraces and outwash plains	Outwash deposits
MeB2	Martinsville loam, 2-6% slopes, eroded	Well	Terraces and outwash plains	Outwash deposits
MeC2	Martinsville loam, 6-12% slopes, eroded	Well	Terraces and outwash plains	Outwash deposits
MkB	Metea loamy fine sand, 4-10% slopes	Well	Till plains	Glacial till
MoC3	Miami clay loam, 6-12% slopes, severely eroded	Well	Till plains	Glacial till
MoD3	Miami clay loam, 12-18% slopes, severely eroded	Well	Till plains	Glacial till
Mp	Milford silty clay loam	Poor	Glacial lake plains	Lacustrine deposits
OsA	Oshtemo sandy loam, 0-2% slopes	Well	Terraces and outwash plains	Outwash deposits
OsB	Oshtemo sandy loam, 2-6% slopes	Well	Terraces and outwash plains	Outwash deposits
OsC2	Oshtemo sandy loam, 6-12% slopes, eroded	Well	Terraces and outwash plains	Outwash deposits
OsD	Oshtemo sandy loam, 12-18% slopes	Well	Terraces and outwash plains	Outwash deposits
Pa	Palms muck, drained	Very poor	Till plains	Organic material
Re	Rensselaer loam	Very poor	Outwash plains	Outwash deposits

Symbol	Soil Type	Drainage	Landform	Parent Material
Rm	Rensselaer mucky loam	Very poor	Outwash plains	Outwash deposits
RtA	Riddles loam, 0-2 % slopes	Well	Till plains	Glacial till
RtB	Riddles loam, 2-6 % slopes	Well	Till plains	Glacial till
RtC2	Riddles loam, 6-12 % slopes, eroded	Well	Till plains	Glacial till
RtD2	Riddles loam, 12-18 % slopes, eroded	Well	Till plains	Glacial till
Tx	Troxel silt loam	Well	Outwash plains	Outwash deposits
TyD	Tyner loamy sand, 12-18% slopes	Well	Terraces and outwash plains	Sandy outwash deposits
Wk	Wallkill silt loam	Very poor	Till plains and lake plains	Organic material
Ws	Washtenaw silt loam	Very poor	Moraines, till plains and outwash plains	Alluvium
Wt	Whitaker loam	Somewhat poor	Outwash plains	Outwash deposits

Climate

The north-central portion of Indiana has a variable climate that is classified as cool-temperate-continental and humid (Newman 1997), and is modified locally by Lake Michigan (Benton 1977, Smallwood 1980). In Marshall County the summers are often hot, while the winters are relatively cold. St. Joseph County has less temperature extremes than Marshall County due to increased cloud cover resulting from the county's closer proximity to Lake Michigan (Benton 1977, Smallwood 1980). This area of the state has an average annual temperature of 49 degrees F. In addition, this area is not as prone to summer droughts as is the remainder of Indiana due to increased ground moisture resulting from winter snow cover. The average annual growing season for these counties is the shortest in the entire state of Indiana and ranges from 150 to 170 days per year (Newman 1997). Average annual snowfall is 30 to 40 inches or more per year, which again is greatly affected by Lake Michigan (Newman 1997). Average yearly precipitation is approximately 37 inches for Marshall County and approximately 36 inches for St. Joseph County (Benton 1977, Smallwood 1980).

Although there have been minor fluctuations, with periods of warming and cooling (Newman 1997), the current climatic conditions in Indiana have existed for approximately the past 5,000 years (Stafford 1997, Melhorn 1997, Newman 1997). However, during the Pleistocene Epoch, the climate was much colder, with glaciers covering large portions of the state. In northern Indiana, the glacial ice lingered longer

than in the rest of the state (Melhorn 1997), with the spruce dominated forests characteristic of the glacial regime being gradually replaced by the deciduous forests (Stafford 1997) that are described below.

Flora and Fauna

The presettlement vegetation of north-central Indiana consisted primarily of an Oak-Hickory association mixed with large areas of both a Beech-Maple association and a Wetlands association (Lindsey 1997). As noted previously, the diverse blending of natural community types within this region resulted in a great diversity of plant and animal life (Casebere 1997). Dry and dry-mesic upland forest types, which once covered approximately half of the region, dominate the Oak-Hickory association. This natural community is characterized by such species as red oak, white oak, black oak, shagbark hickory, and pignut hickory. The mesic areas of the Beech-Maple association are characterized by such dominant species as beech, sugar maple, black maple, and tulip tree. Natural community types of lake, swamp, marsh, and bog, each of which has many distinctive species, a few of which are state restricted, characterize the Wetlands association. These restricted species include ginger-leaved pyrola, needle-and-thread grass, knotted spikerush, autumn willow, and Deam's rockcress (Homoya et al. 1985:252-253, Casebere 1997, and Lindsey 1997).

According to Mumford (1966 and 1997), there are currently 57 species of wild mammals occurring in Indiana. The more commonly observed species include white-tailed deer, opossum, gray squirrel, red squirrel, fox squirrel, eastern chipmunk, eastern cottontail rabbit, raccoon, woodchuck, and striped skunk. Other, not as readily seen, species include several varieties of bat, shrew, and vole, as well as beaver, mink, and coyote (Mumford 1966). As with the flora, north-central Indiana's Northern Lakes Natural Region is home to distinctive fauna including the spotted turtle, massasaugua rattlesnake, Blanding's turtle, star-nosed mole, cisco, marsh wren, swamp sparrow, and sandhill crane (Homoya et al. 1985:252-253, and Casebere 1997). Many aquatic species of mammals, turtles, and fish are prevalent in this region and waterfowl, such as ducks and geese, are also extremely abundant especially during migrations (Casebere 1997). Bison and black bear were also present in north-central Indiana, but were gone by the mid 1800s (Richards and Whitaker 1997).

Many species of megafauna existed in the region during the Pleistocene. These included the mastodon, mammoth, giant beaver, giant ground sloth, saber-tooth tiger, dire wolf, musk ox, various species of peccary, the ancient bison, short-faced bear, stag moose, tapir, giant armadillo, jaguar, and horse. However, all of these species were extinct in Indiana by approximately 10,000 years ago (Richards and Whitaker 1997).

CULTURAL OVERVIEW

Paleo-Indian (prior to 8000 B.C.)

The evidence for Paleo-Indian peoples in eastern North America includes several types of lanceolate fluted and unfluted points as well as a diverse assemblage of chipped stone tools (Griffin 1967:176; Justice 1987). During late glacial and early post-glacial times these tools were used to exploit large game such as caribou, musk oxen, mammoth, and mastodon as well as scarce edible plants. Small sites with no evidence for permanent structures and low artifact densities imply high mobility and band-level social organization (Stoltman and Baerreis 1983:253-254).

Fluted Paleo-Indian points are among the rarest point forms and seldom occur in good archaeological context. Approximately 400 fluted points are recorded for Indiana as a whole, the majority occurring in the southern half of the state from floodplain or terrace contexts. Tankersley (1992:9) notes that six of these points have been reported for Marshall County, while only one has been reported for St. Joseph County.

Early Archaic (8000 - 6000 B.C.)

The hunting and foraging people of later Paleo-Indian and Early Archaic times slowly adjusted to the extinction of large game brought on by the changing landscapes of an increasingly warmer and drier climate. The distinction implied by the term Early Archaic is thus a blurred one, marking a time of transition from specialized hunting and limited foraging toward more regionally focused deer and small game hunting (Stoltman 1978:714; Hicks 1992:13). Tool assemblages indicate continued primary emphasis on hunting and animal processing (Griffin 1983:244), though the gathering of newly available plants and aquatic resources undoubtedly increased during this time. An increase in the number of sites encountered suggests population growth or aggregation as well as an increasingly diversified subsistence/settlement system (Mohow 1992:21).

Middle Archaic (6000 - 4000 B.C.)

Middle Archaic people of the Midwest adapted to a time of maximum warmth and dryness that was accompanied by the spread of grasslands and oak-hickory forests. A reduction in hunting and gathering mobility brought on by resulting resource patchiness probably fostered population growth and logistically organized collector strategies (Brown and Vierra 1983:168; Stafford 1994:219-221). An increase in rough and ground stone tools, such as grinding stones, pestles, bannerstones, and grooved axes, marks a time of increased subsistence diversity (Griffin 1967:178), but deer, hickory nuts, and at some locations aquatic resources probably dominated the diet (Stafford 1994:223). Middle Archaic horizons from the Koster site in the lower Illinois Valley contain chipped, rough and ground stone tools, diverse antler and bone tools, hearths, roasting pits, mussel steaming pits, shell dumps, shallow storage pits and evidence for rectangular structures (Brown and Vierra 1983:183-184). High quantities of fire-cracked or fire-

burned rock at Middle Archaic base camps suggests intensive food processing, probably the extraction of hickory nutmeats and oil (Stafford 1994:221).

Late Archaic (4000 - 1000 B.C.)

The Late Archaic in the Midwest is widely known as a period of increasing complexity and diversity and as a time of transition between established Archaic patterns and new Woodland patterns featuring ceramics, food production, and mound building (Griffin 1983:249; Stoltman 1978:715). Larger sites with recurrent habitations suggest considerable population growth (Griffin 1983:249), which may be linked to the gradual return of cooler and wetter conditions and the spread of modern mixed-deciduous forests. Other general trends include increasing use of plant foods, increasing numbers of grinding stones, a greater variety of preserved faunal remains, evidence for structures, the appearance of shell midden sites, long distance exchange of raw materials and finished objects, and inclusion of exchange objects in burials (Griffin 1967:178-180; Griffin 1983:249; Kellar 1983:29). Early fiber-tempered ceramics appear in the southeast by about 2000 B.C. (Griffin 1967:180), but ceramics do not appear in the Midwest until the end of the Late Archaic (Griffin 1983:249). Evidence for the cultivation of native plants as well as squash and gourd imports from the southeast is evident at the end of the Late Archaic (Ford 1974:401).

There are a number of named regional Late Archaic manifestations throughout the Midwest. One of the best known is the Helton phase, which is known from the Koster site in the lower Illinois Valley. Helton phase artifacts include Matanzas, Godar, Helton, Karnak Stemmed and Table Rock Stemmed points, T-shaped drills, full and three-quarter grooved axes, plummets, bannerstones, metates, and chevron-incised bone pins. A variety of hearths and roasting pits are found at Helton phase sites along with evidence for a rectangular house pattern. Some differences in burial treatment suggest the marking of status and in some cases Helton phase burials contain exotic materials such as marine shell or copper (Griffin 1983:250; Brown and Vierra 1983:185; Munson and Cook 1980:734-736). By 2000 B.C. the Helton phase is replaced at Koster by the Titterington phase, which is defined by Wadlow, Etley, Sedalia, Merom, and Kampsville points (Brown and Vierra 1983:186). Titterington people are cited as having a well-adjusted economy that made equal use of floodplains, uplands, and areas between (Griffin 1983:250). Munson and Cook (1980) defined the French Lick phase (3000-1500 B.C.) in south-central and southwestern Indiana. This phase incorporates riverine shell midden and non-shell midden sites with Matanzas, Big Sandy II, Karnak, and straight to expanding stemmed points. The subsistence/settlement system is characterized by summer and fall base camps along large creeks and tributary confluences, fall and winter camps along tributaries, and summer shell midden sites along large rivers (Munson and Cook 1980:723-730). Riverton culture sites (2000-1000 B.C.) have been identified along the middle Wabash River by Winters (1969). Sites range from shell middens along the river to terrace top settlements with houses and prepared clay floors (Winters 1969:137). Robeson Constricted Stem, Merom Expanding Stem, and Trimble Side Notched points are diagnostic of the Riverton Culture along with the occurrence of Robeson gouges, grooved sinkers, limonite axes, "cloudblower" pipes, and Indian Knoll rattles. Winters

looks south for Riverton antecedents, arguing against connections to the earlier “Wabash Valley Archaic” (Winters 1969:103-108). Ford (1974:395) includes the various Late Archaic manifestations discussed here in a larger mid-continent tradition called the Riverine Archaic.

While the Riverine tradition clearly defines southern portions of Indiana, the Late Archaic in the northern half of the state is not as well understood. A complex known as Glacial Kame is known from burials in gravel mounds with distinctive marine shell, gorgets, and native copper grave goods. Red ochre and “birdstones” were often included as well (Griffin 1983:253; Kellar 1983:34). In the western portion of the state a related mortuary complex known as Red Ocher is defined by red ocher-covered burials in low artificial mounds. Distinctive Fulton Turkey-tail points are associated with Red Ocher manifestations, often occurring in large caches (Kellar 1983:34). These burial complexes appear ancestral to the burial ceremonialism that became so widespread during Early and Middle Woodland times.

Early and Middle Woodland (1000 B.C. - A.D. 500)

Roughly simultaneous occurrence of ceramic manufacture, food cultivation, and artificial earth constructions characterizes the Early and Middle Woodland periods in the Midwest. Following developments in the Middle Atlantic area, cord-marked ceramics such as Marion or Schultz Thick spread rapidly. More complicated indigenous ceramics with rocker and dentate stamped decoration appeared during the Middle Woodland along with trade vessels from the southeast (Griffin 1967:184; Griffin 1983:254). Intensive hunting and gathering appears to have been supplemented by cultivation of squash and gourd and the indigenous cultigens sunflower, sumpweed, and goosefoot (Stoltman 1978:718; Ford 1974:401). Corn was adopted from the southwest much later, and became a regular (though not staple) part of Middle Woodland subsistence (Ford 1974:402).

Early Woodland peoples constructed earthen mounds for the dead throughout many parts of eastern North America. The most extensive form of this practice by Adena peoples took place in the Ohio Valley area (Griffin 1983:254). Cremation and inhumation burials have been found in village cemeteries and in accretional mounds built over the locations of circular “ritual” structures (Griffin 1983:258; Clay 1986:581). The distribution of Adena mortuary goods among adult males suggests the presence of graded, achieved statuses (Mainfort 1989:173). Mortuary goods include cut mica, copper bracelets, copper beads, copper adzes, tubular pipes, effigy pipes, marine shell, engraved stone tablets, and plain and decorated ceramics (Griffin 1983:258-259). Small domestic sites, with strategic locations between valleys and uplands, characterize other Early Woodland complexes such as Black Sand in western Illinois (Griffin 1983:257).

After approximately 100 B.C. Middle Woodland Hopewellian regional complexes dominated the Midwest. Hopewell sites in Ohio include large and complex geometric earthworks and burial mound clusters (Griffin 1983:262-262). Mortuary goods reflect a wide sphere of interaction for Hopewell peoples. Copper, silver, galena, meteoric iron, quartz crystal, mica, obsidian, Ohio pipestone, and marine shell commonly appear in

burials as raw materials or artifacts. Human and animal effigies in clay, on carved platform pipes or in cut mica are among the broad array of elaborate Hopewell artifact forms (Griffin 1967:184). Greber (1979) has identified some social divisions and “high ranking” individuals using mortuary data, but the structure of Hopewell society cannot be reliably inferred from the data (Griffin 1983:263). Havana Hopewell in western Illinois includes smaller mound burials and similar types of mortuary goods, though no geometric earthworks are present (Griffin 1983:268). A similar Hopewellian complex is known in western Michigan (Fitting 1978:47-49). Other mound building, stamped ceramic cultural complexes have been identified in the Great Lakes area, such as Laurel in Minnesota, northern Wisconsin, Michigan, southeastern Manitoba and western Ontario (Griffin 1983:271). Elsewhere, such as in northern Indiana, southeastern Michigan, and northern Ohio, poorly understood Middle Woodland complexes await further clarification (Fitting 1978:47). Schurr (2003a and b) has identified the Goodall Tradition in northwestern Indiana as being a manifestation of Middle Woodland Hopewell and a regional variant of Havana Hopewell from Illinois.

At a limited number of terrace and floodplain habitation sites throughout Indiana, Early Woodland Marion Thick ceramics occur in association with pits and thick midden deposits. In a similar setting, ceramics of Middle Woodland age are associated with living floors and hearths (Kellar 1983:36, 43; Hicks 1992:25). Aspects of Adena and Hopewell ceremonialism have been observed in southern and east-central Indiana. The Nowlin Mound site in southeastern Indiana contained seven log tombs within a single mound and small amounts of typical Adena mortuary goods (Kellar 1983:38). Crab Orchard Tradition Hopewell burial mounds are situated on high terraces and bluffs in southwestern Indiana, and a village/ceremonial complex has been identified in Posey County (Kellar 1983:45-46). Mounds and earth enclosures in east-central Indiana were constructed from late Adena through Hopewell times (Cochran 1992:26). Diagnostic artifact types for Adena sites in Indiana include Montgomery Incised ceramics, copper bracelets, and Adena points and cache blades. Hopewell diagnostics include various types of stamped ceramics, copper earspools, stone effigy pipes, Hopewell Cache blades, Snyders points, and Lowe Flared Base points (Kellar 1983:41-45).

Late Woodland and Mississippian (A.D. 500 - 1650)

The transition to the Late Woodland period is marked by the abrupt decline of fluorescent Hopewellian complexes, though in many areas no decline from established regional Middle Woodland patterns is seen (Stoltman 1978:721-22). The early Late Woodland in central and southern Illinois is characterized by cord-marked ceramics and small, scattered sites typical of a generalized economy. Similar cord-marked ceramics are also noted for western Michigan (Fitting 1978:54). The Newtown complex in southern Ohio and southeastern Indiana includes large villages with circular house plans. Lowe Flared Base points, Chessier Stemmed points, and cord-marked ceramics are characteristic (Griffin 1983:272-273). Villages of the Allison-LaMotte and Albee complexes are found in the middle to lower Wabash Valley. Oval dwellings, Lowe Flared Base points, stamped ceramics, and increasing evidence for plant cultivation, characterize Allison-LaMotte. Excavation of an Albee cemetery revealed tools, beads, gorgets, and cord-

marked ceramics with distinctive wedge-shaped rims (Kellar 1983:50). Botanical remains from the Albee complex Morell-Sheets site (12 My 87) in west central Indiana suggest roughly equal use of maize and wild plants at a spring through summer occupation (Bush 1994:7).

Inhabitants of the Midwest became more intensely horticultural after A.D. 900 and established larger, more sedentary villages characterized by house clusters, storage pits, and stockades (Stoltman 1978:723-724). Such changes may be associated with the improved subsistence during the warming of the Secondary Optimum (A.D. 1000-1200), but the trend towards larger settlements is one that began earlier. In the American Bottom the Cahokia site represents Mississippian cultural florescence. During Cahokia's apogee (A.D. 950-1300) people engaged in the construction of enormous platform mounds and further evidence for social complexity is seen in elaborate mound burials (Griffin 1983:278-280). Cahokia was linked through cultural similarity and interaction to a number of independently derived expressions throughout the Midwest and southeast. As the largest Mississippian center, Cahokia is thought to have exerted considerable influence throughout this area and at its margins (Stoltman 1978:725; Griffin 1983:280-282). The Angel, Murphy, and Vincennes Complexes represent Mississippian cultural patterns in southern Indiana. The forty-hectare Angel Mounds site and associated villages, hamlets, and camps are located in the southwestern tip of the state along the Ohio and Wabash Rivers. The Angel Mounds site represents a palisaded town with platform mounds, plazas, rectangular house remains, and a main occupation date between 1200 and 1400 A.D. (Griffin 1983:283). Diagnostic artifacts include typically Mississippian ceramic bowls, bottles, plates and jars and small triangular arrow points. Some Angel vessels feature negative painted motifs and effigies (Griffin 1983:286-288). Distinctly less complex Mississippian sites of the Murphy and Vincennes complexes are located along the lower Wabash River in Illinois and Indiana (Griffin 1978:550). The Caborn-Welborn phase of Mississippian, with more dispersed and unfortified settlements, replaces earlier Mississippian occupations in the Ohio/Wabash area after A.D. 1450 and continues until the time of European exploration of eastern North America (Griffin 1983:288).

In contrast to the Mississippian cultural patterns in southern Indiana, the Mississippian cultures in northern Indiana are represented by such cultural expressions as the Huber and Fisher Phases (Faulkner 1972). Archaeological evidence shows that the Mississippian peoples of northern Indiana had semi-permanent village sites in the upland areas during the spring and fall, when crops were being planted and harvested, and seasonal, temporary encampments in the vicinity of the vast marshlands of the area while procuring resources during the summer (Faulkner 1972). Deutchman and Dorwin (1979) and Perkins and Doershuk (1993) note that groups in northern Indiana appear less dependent on corn than groups further south. They suggest that this is a result of the more uncertain weather conditions and the presence of plentiful marshes, which yielded large amounts of wild floral and faunal resources. This resulted in a return to smaller seasonal camps during the Late Woodland and Mississippian time periods.

Whereas most of the Late Woodland Period for Indiana provides a general image of cultural continuity, the region became relatively depopulated during the centuries before direct European contact (Hicks 1992:42). Population movements probably resulted from indigenous social and ecological factors as well as indirect impacts from European presence on the continent. Newman (1997) notes a cooling temperature trend in North America during the fifteenth and sixteenth centuries, with a thermal minimum being reached near the end of the seventeenth century. This corresponds to the "Little Ice Age" of Europe and may also have had an affect on population movements out of Indiana at that time.

Historic (A.D. 1650 to Present)

Connections between prehistoric and historic Indian groups in Indiana are not clear, although links between the prehistoric Ft. Ancient and historic Shawnee Indians have been suggested. Faulkner (1972) suggests that the Fisher and Huber cultures of northern Indiana are the prehistoric correlates of the Iliniwek or Miami tribes who moved into northern Indiana as a response to pressure from the Iroquois. Faulkner bases this on the comparison of ethnohistorical data and the known subsistence and settlement patterns of the prehistoric inhabitants of the area, as determined from the archaeological record. Both Faulkner (1972) and Secunda et al. (2002) indicate that the Potawatomi had also moved into northern Indiana and inhabited the region by 1500 AD.

In the late 1600's the coastal Iroquois of New York acquired firearms from the Dutch, then preceded to wreck havoc on their neighboring tribes, clearing a vast area north of the Ohio River from New York almost to the Mississippi. A note from the cartographer on "A Map of the British and French Dominions in North America" (Mitchell 1755) records this native expansion:

The Six Nations (the Iroquois) have extended their territories to the River Illinois since the year 1672 when they subdued and were incorporated with the Ancient Chaouanons, the Native Proprietors of these Countries, and the River Ohio: Besides which they likewise claim a Right of Conquest over the Illinois, and all the Mississippi as far as they extend...

The French restored technological parity by providing firearms to the Iroquois' neighbors, and Miami settlement of the area resumed in Indiana by 1680 (Barnhart and Riker 1971). By 1700 the Wea, Piankashaw, Potawatomi, Kickapoo, and Delaware had followed, as white man's diseases, weapons, and greed first for furs, and then for new lands, decimated the native populations, pushing the Indian ever westward.

Miami Chief Little Turtle laid claim for the Miami, Potawatomi, and Wabash Indians, all the lands contained in Indiana, western Ohio, and the eastern edge of Illinois in a speech to General Wayne at the Treaty of Greenville on August 21, 1795 (Wheeler - Voegelin et al. 1974):

You have pointed out to us the boundary line between the Indians and the United States; but I now take the liberty to inform you that the line cuts off from the Indians a large portion of country without molestation or dispute. The prints of my ancestor's houses are everywhere to be seen in the portion.... It is well known that my forefather kindled the first fire at Detroit; from thence he extended his lines to the headwaters of the Scioto; from thence to its mouth; from thence down the Ohio to the mouth of the Wabash; and from thence to Chicago, on lake Michigan. At this place I first saw my elder brothers the Shawnees.

Chief Little Turtle at the Treaty of Greenville with the chiefs of eleven other tribes then sold over 25,000 square miles of this land to the United States government for about 3 cents an acre.

The Indians became increasingly alarmed at the loss of their lands to the whites. Chief Tecumseh, an Indian statesman and warrior, began an effort to unite the tribes against the sale of their common lands and with his brother, the Prophet, established the Indian Capitol of "Prophetstown" a few miles east of present day Lafayette. The British, stung by their loss of the colonies, continued to encourage the Indians to resist the new republic while preparing for their attack on the American Capitol in the War of 1812. Locally this resistance resulted in the Battle of Tippecanoe in 1811, when Harrison's troops marched to Prophetstown, defeated the Indians, and burned the town. The armed resistance to the white expansion in Indiana was over. By 1840, except for small isolated bands, the native populations had been "removed" to lands "forever theirs" west of the Mississippi. Prior to this removal, northern Indiana contained 36 Potawatomi and 23 Miami communities (Tanner 1987).

The Treaty of Mississinewa in 1826 and the Treaty of Tippecanoe in 1832 made the lands that are currently Marshall and St. Joseph Counties available for settlement. Many of the first settlers of this area migrated northward along the state's first north-south highway, the Michigan Road, which was surveyed through the area in 1828, made "passable to wagons" by 1834, and completed in 1837 (Montgomery 1902, Prather 1941, Taylor 1989) (Figure 4). According to Prather (1941), "...with only a few minor changes in routing, this road, ...still curves up across Indiana from Madison in southeastern Indiana to Michigan City in the northwestern corner of the state... and is now designated as...Highway 31 from Rochester to South Bend." As Secunda et al. (2002) point out, the Michigan Road followed an older Indian trail through what is now Marshall and St. Joseph Counties. A brief history and background of Marshall and St. Joseph Counties are provided below.

Marshall County

Marshall County (Figure 5) was formed in 1835 and organized in 1836. The county was named for United States Supreme Court Chief Justice John Marshall (Taylor et al. 1989, Baker and Carmony 1975). Plymouth was platted in 1834, was established as the county seat in 1836, was incorporated as a town in 1851, and reached city status in

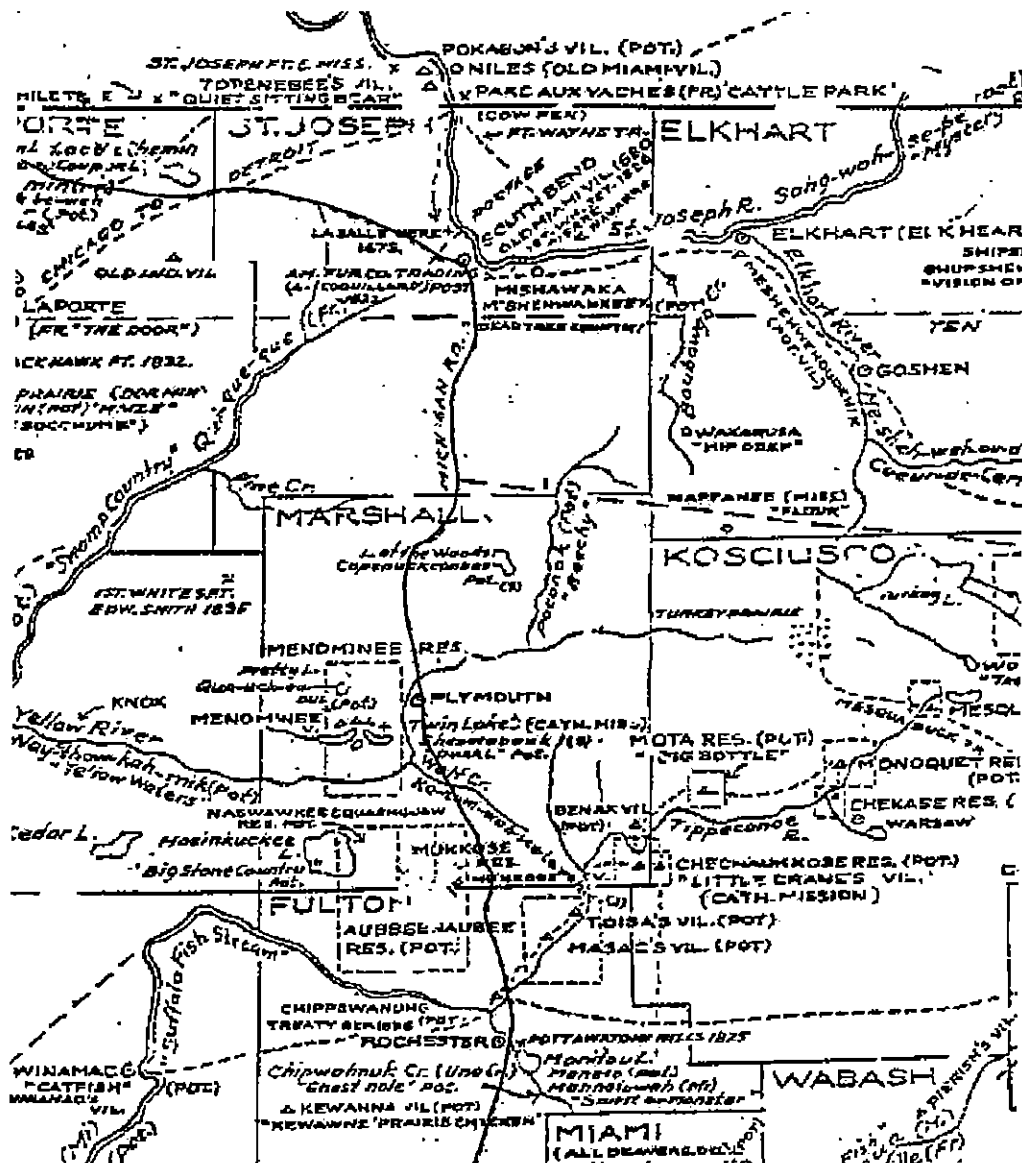


Figure 4: Historic Map of Indiana Showing the Location of the Michigan Road in Marshall and St. Joseph Counties (Guernsey 1933)

1873 (Taylor et al. 1989). Marshall County was originally part of the territory belonging to the Menominee tribe of the Potawatomi Indians, which was ceded in the government purchase under the 1832 treaty of Tippecanoe River (Taylor et al. 1989). However, it was not until after 1838, when the Potawatomi Indians were forcibly removed during the infamous "Trail of Death" march, that this area became open for large scale white settlement (Taylor et al. 1989, Tanner 1987).

The current US 31 Study Area encompasses two of the ten civil townships within Marshall County. These are Center and North Townships, which were two of the three original townships organized in 1836 and 1838, respectively (Historic Landmarks Foundation 1990).

Marshall County relies heavily on agriculture as the basis for its economy. Agriculture within the county was difficult at first, due to the necessity of having to drain the marshlands that made up a large part of the county, especially in the northern portion (Taylor et al. 1989, Historic Landmarks Foundation 1990). Brant and Fuller (1890) provide an in depth discussion on the draining of the areas that were once impassable bogs but are now fertile lands, excellent for farming with very productive soils. The primary crops grown in Marshall County include onions, mint, corn, oats, potatoes, and hay, all of which grow in the muck created by draining the marshlands, while orchards abound in the highland areas (Taylor et al. 1989).

St. Joseph County

St. Joseph County (Figure 6) was organized in 1830 by the Indiana state legislature, with South Bend named as the county seat. Initially, the western boundary of St. Joseph County extended to the state's western border. After several alterations, the existing boundaries were formed in 1850. The county was named after the St. Joseph River, which flows through the county (Taylor et al. 1989, Baker and Carmony 1975).

The area that eventually became the city of South Bend was first explored in 1679 by French explorers, including La Salle, who canoed up the St. Joseph River and crossed the Kankakee-St. Joseph portage. Europeans did not settle permanently in the area until the 1800's, the earliest being the fur traders. South Bend grew out of a small settlement that was in the vicinity of two trading posts along the St. Joseph River. The settlement received a large boost from the construction of the Michigan Road, which played an integral role in the settlement of north-central Indiana (Prather 1941, Taylor et al. 1989). The population of St. Joseph County was 287 in 1830 and had increased to 6,415 by 1840 (Prather 1941).

The area under consideration for the US 31 project includes three of the thirteen civil townships of St. Joseph County. These townships are Center, Portage, and Union. Portage Township was one of the four original townships in St. Joseph County organized in 1830. Center Township was formed in 1831, and Union Township was formed in 1836. Re-organization of the townships continued until the present thirteen were arrived at when the final county boundaries were determined in 1850 (Taylor et al. 1989).

MAP OF MARSHALL COUNTY.

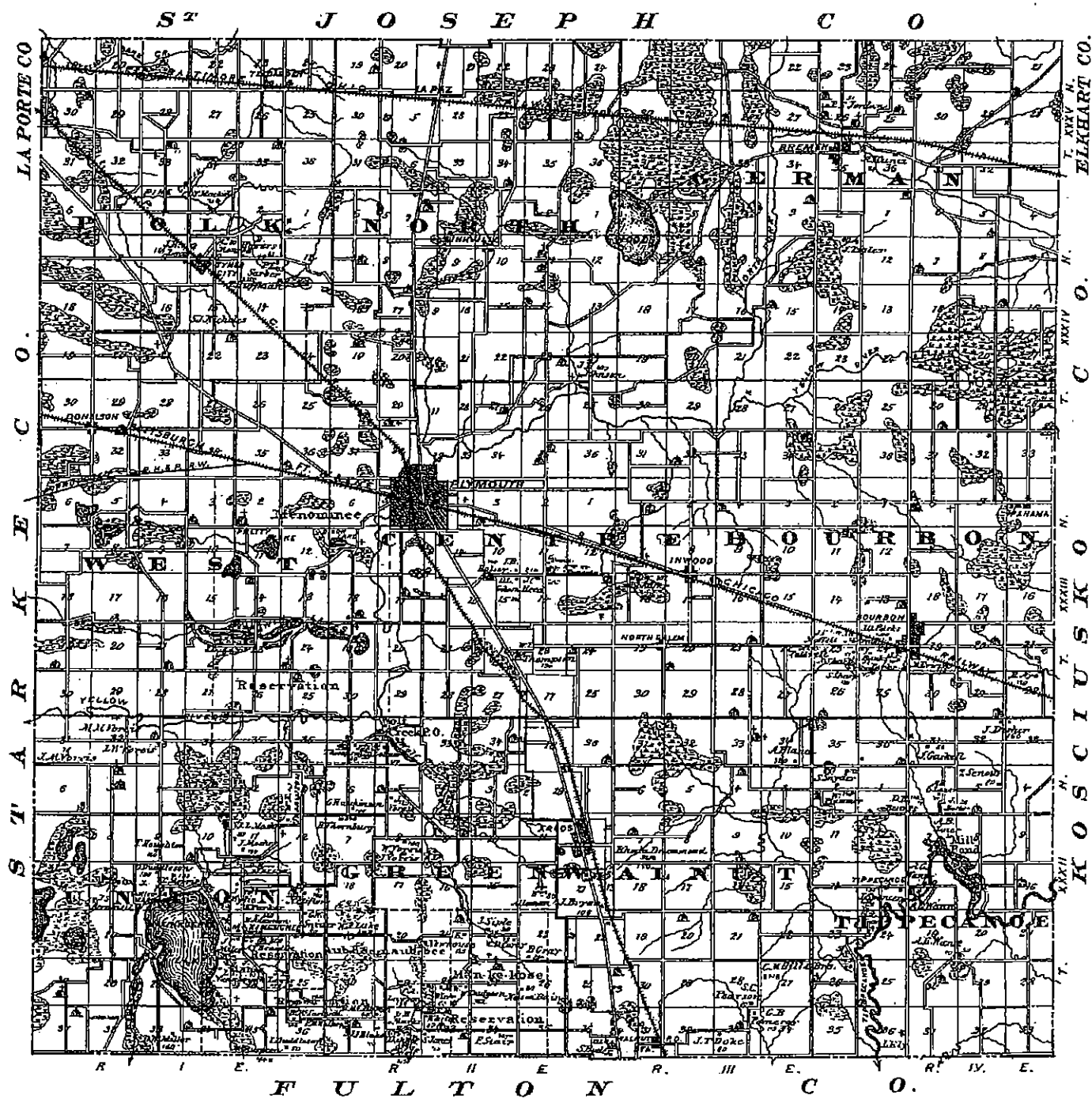


Figure 5: 1876 Map of Marshall County (Indiana Historical Society 1968)

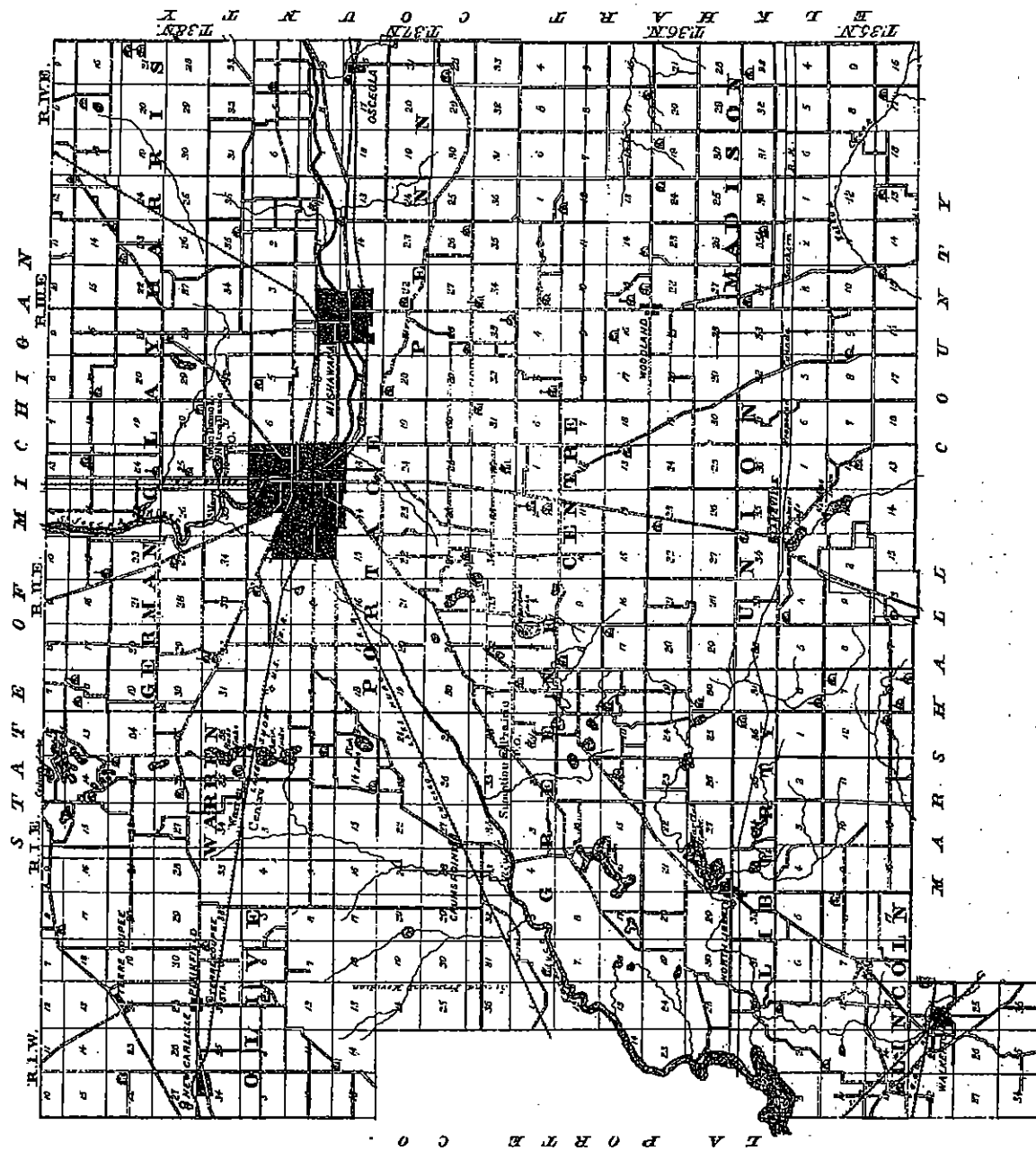


Figure 6: 1876 Map of St. Joseph County (Indiana Historical Society 1968)

Like Marshall County, St. Joseph County also has rich farmland as a result of draining the marshlands, with fruit and grain being the principal crops grown (Taylor et al. 1989). However, the county also has a strong industrial base concentrated in the adjoining cities of South Bend and Mishawaka, which lie along the St. Joseph River. Many of the early enterprises relied on the river itself, including power produced by two man-made races on either side of the river in the city of South Bend. The three dominant early businesses in South Bend were the Studebaker Wagon Works (which later switched to automobile manufacturing), The Oliver Plow Company, and the Singer Sewing Machine Company. Today, the economy of this area still relies on manufacturing, but is much more diversified than in earlier years (Taylor et al. 1989).

METHODS

The archaeological records check and literature search for this project utilized the resources of several organizations and facilities in order to provide a complete and comprehensive listing of the previously documented archaeological sites present within the Study Area. In addition, previous archaeological research and compliance projects within and around the proposed alternatives were examined in order to determine the potential for the Study Area to contain archaeological resources.

The primary data for this project came from archaeological site forms, a computer database, topographic maps, and archaeological reports on file at the Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology (IDNR, DHPA). In addition, reports on file at Landmark Archaeological and Environmental Services, Inc. that contained information regarding previous archaeological investigations in the Study Area were also examined.

Additional information about the Study Area was collected from various historic maps and documents on file at the Indiana State Library, the Marshall County Historical Museum, and the St. Joseph County Library. These documents included original county histories, such as the *History of St. Joseph County* (Chapman & Co. 1880), *History of Indiana: Special Edition for Marshall County* (Brant and Fuller 1890), *A History of St. Joseph County, Indiana* (Howard 1907), *A Twentieth Century History of Marshall County, Indiana* (McDonald 1908), and *An Account of St. Joseph County from Its Organization* (Stoll 1923). County and state maps, road maps, and plat maps from the late nineteenth and early twentieth centuries were also studied in order to assess the potential for historic archaeological sites within the project area.

The cemetery data for Marshall and St. Joseph Counties was obtained from the cemetery database records at IDNR, DHPA, USGS 7.5 minute topographic maps, county interim reports, and records at the Indiana State Library. This was done in order to assist in the recommendations of avoidance for the known historic cemeteries affected by the study alternatives. The cemetery database at IDNR, DHPA for Marshall and St. Joseph Counties is currently in progress and has not yet been completed for either county.

RESULTS

Previous Archaeological Studies

It is important to note that there has been very little archaeological research done in north-central Indiana as compared to the remainder of the state, resulting in a limited understanding of the prehistory of this area (Deutchman and Dorwin 1979; McGowan et al. 1998; Schurr 2003a). The majority of archaeological studies in northern Indiana have concentrated in the northeastern or northwestern portions of the state, particularly along the major drainages such as the Kankakee River and lower St. Joseph River, as well as along Lake Michigan. These studies have tended to focus on Middle Woodland, Late Woodland, and Mississippian cultural manifestations (Faulkner 1960, 1972; Garland and Clark 1981; Mangold 1997; Schurr 1993, 1996, 2003a, 2003b). Faulkner (1972:14) notes that the early archaeological investigations in northern Indiana were “mound-oriented” and failed to mention any other prehistoric cultures other than what was similar to Middle Woodland Hopewellian expressions. As Secunda et al. (2002:14) state, “in general, differences in cultural occupations across northern Indiana are better known for Late Prehistoric occupations than they are for earlier ones”, which in turn may be the result of this earlier “mound-oriented” focus.

Professionals unfortunately often refer to the north-central portion of the state as an “archaeological void”. That is not to say that archaeological sites do not exist, only that very little work has been done in the way of recording them. Schurr (2003a) points out that the area south and east of the Kankakee drainage, where the current US 31 Study Area is located, has been particularly neglected by archaeological research within the state.

Some of the basic framework for the understanding of the prehistory of the last millennium for northwestern Indiana has come from investigations of the Moccasin Bluff Site located in the lower St. Joseph River Valley in southwestern Michigan (Schurr 2003a). Moccasin Bluff is a large multi-component site located on a terrace near the St. Joseph River that was occupied for approximately 8,000 years. According to Fitting (1970), this site was excavated in 1948 by the University of Michigan and is the most extensively excavated site in southwestern Michigan. The Upper Mississippian components at the Moccasin Bluff Site are very similar to the Fisher and Huber Phases of northwestern Indiana, as defined by Faulkner (1972), and may indicate an expansion of these cultural traits into southwestern Michigan from northwestern Indiana (McAllister 1999).

Other studies conducted in southwestern Michigan also indicate prehistoric cultural ties to northern Indiana (Garland 1986, Garland and Mangold 1980, Garland and Clark 1981, Mangold 1981). Again, some of these cultural comparisons focus on Woodland and Mississippian traditions. However, Mangold (1981) does discuss the presence of a sparse number of Paleo-Indian sites as well as a number of Archaic sites in his survey of the Galien River Basin, portions of which extend into northern Indiana and St. Joseph County (Mangold 1981). In addition, sites excavated in the right-of-way of US

31 project in Berrien County, Michigan (Garland and Clark 1981) revealed Late Archaic occupations on several of the sites. The topographic settings of the archaeological sites discussed in these investigations may help to assess the potential for the presence of archaeological sites in similar topographic settings within the current US 31 Study Area.

One of the best sources on information on the prehistoric resources of the Study Area comes from Ervin Stuntz, an amateur historian with a keen interest in the prehistory of northern Indiana. His works, *The Incredible Wheel of Time* Vols. I and II (Stuntz 1983 and 1984), while not professional studies, do provide information pertaining to the locations of Indian villages and burial grounds in Marshall and St. Joseph Counties based on interviews with local artifact collectors. These works were also examined as part of the background research for this project, and may provide relevant information that can be utilized upon commencement of actual archaeological fieldwork. A few of the sites Stuntz describes do roughly correspond to previously recorded archaeological sites.

Marshall County

In 1959-1960, Charles Faulkner undertook the first, and really only, major professional attempt to survey and document archaeological resources in Marshall County (Faulkner 1961). It should be noted that while Faulkner surveyed many of the sites he recorded, some of the sites were recorded based on information he obtained from interviews with local artifact collectors. Faulkner (1961) recorded 316 sites within Marshall County, with 35 archaeological sites being recorded within Center Township and 15 archaeological sites being recorded within North Township. Bellis (1975) states that Faulkner “had produced the most complete and accurate data available” for the northern quarter of Indiana.

Faulkner (1961) noted that the vast majority of the sites he recorded were seasonal, Woodland period hunting and collecting sites, as opposed to the permanent villages found elsewhere in the state for this time period. These sites were located on sand ridges and knolls of eolian origin, which would have been the only areas suitable for habitation within the vast marshlands of the county that existed prior to the draining that occurred during historic times. Faulkner also points out that prehistoric groups in this area appeared to be less dependent on horticulture than elsewhere during the same time frame due to the presence of other rich natural resources in the form of abundant marshland flora and fauna.

Another archaeological study conducted in Marshall County was the excavation of the Rouch Site in the western part of the county, by personnel from the University of Notre Dame (Bellis 1975). The Rouch Site was originally identified by Faulkner and is an Early Archaic to Mississippian lithic workshop. It is the only site of this type excavated in northern Indiana (Bellis 1975).

Other archaeological investigations conducted in Marshall County include various small-scale compliance projects such as road improvements, developments, and proposed cellular phone tower locations. Several of these studies were conducted within one mile

of the Study Area and incorporate all three preferred alternatives (Buehrig 1986, Stillwell 2000b and c). The surveys by Buehrig (1986) and Stillwell (2000b and c) revealed no evidence of archaeological resources, however, this may be in part due to the small size or the previously disturbed nature of the project areas. One additional survey (Fabyan 1978), conducted on the west side of the town of Plymouth and near the southern terminus of the current US 31 Study Area, recorded four archaeological sites.

A recent research project conducted by personnel from the University of Notre Dame (Secunda et al. 2002) involves the investigation of historic Potawatomi villages in northern Indiana. The project used the original General Land Office (GLO) records to assist in locating these villages, which existed up until the removal period in the late 1830s. This study does involve portions of Marshall County, although the specific areas surveyed are outside of the current US 31 Study Area.

To date there are 383 archaeological sites recorded in Marshall County. As discussed above, Faulkner (1961) recorded 316 of these sites. As can be determined from this data, very few archaeological sites have been recorded in Marshall County in the past 40 years. This again points to the lack of archaeological work having been completed in this county, not the paucity of archaeological sites themselves.

St. Joseph County

There are 418 archaeological sites recorded in St. Joseph County to date. Although there has been no systematic countywide survey undertaken in St. Joseph County, several larger archaeological surveys have been conducted including various highway corridor studies and other compliance projects.

Soil Systems, Inc. in 1979 (Deutchman and Dorwin 1979) and Resource Analysts, Inc. in 1980 (Bouchard and Dorwin 1981) both surveyed routes around South Bend as part of the US 20 bypass corridor study. The 1979 survey recorded 269 archaeological sites (197 of which were isolated artifact finds) and the 1980 survey recorded 54 additional archaeological sites. Deutchman and Dorwin (1979:9) note that prehistoric cultural remains were found in both upland settings and depressional areas that once bordered glacial ponds and lakes, and marshes. They also concluded that north-central Indiana was not extensively occupied during prehistoric times, a fact which is not just the result of the lack of archaeological investigation in the area but is based on the results of their survey (Deutchman and Dorwin 1979).

These two surveys account for a large portion of the archaeological sites recorded for St. Joseph County. Some of these sites fall within and portions of these surveys cross the current US 31 Study Area, as will be discussed below. However, it should be noted here that the 1979 survey did not assign state site numbers to the 197 isolated artifact finds recovered from this survey, as far as could be determined from the information available at the IDNR, DHPA.

The original survey for the U.S. 20 bypass corridor study (Deutchman and Dorwin 1979) contains two corridor alternates that partially overlap the current US 31 Study Area. These are the western end of “Original Line N” and the western portion of the “Southern Alternate”, both of which cross portions of the three preferred alternatives (Cs, Es, and G-C). One archaeological site (12-Sj-26) and seven archaeological isolated finds were found during this survey that fall into the current US 31 Study Area (see Tables below in Archaeological Resources section).

The 1981 survey for the U.S. 20 bypass corridor study (Bouchard and Dorwin 1981) also overlaps the current US 31 Study Area. The western end of survey Line N of the U.S. 20 project also falls into portions of three preferred alternatives (Cs, Es, and G-C). However, no evidence of archaeological resources was found in that portion of the U.S. 20 project that overlaps the current US 31 Study Area.

Other smaller compliance projects have also been conducted near the current US 31 Study Area within St. Joseph County. The majority of these were road improvement projects, development projects, and proposed cellular phone tower locations (Bellis n.d., 1983; Cantin 1995a, b; Cochran 1999a, b; Dietrich 1985; Helmkamp et al. 2000; Helmkamp and Javorsek 2001; Keener 2000a, b; Maust 1987; Stillwell 1997, 2000a, b, 2002; Tomak 1987; Tonetti 1976; Verbka 1994; Wappenstein 1999).

Of the above referenced smaller compliance projects, eleven have been conducted within the current US 31 Study Area (Bellis 1983; Cantin 1995a, b; Cochran 1999a; Helmkamp and Javorsek 2001; Stillwell 1997, 2000a, b, 2002; Verbka 1994; Wappenstein 1999). These investigations are correlated by alternative in the following table.

Table 3: Previous Small Archaeological Surveys Conducted within the Study Area

Survey	Study Band	Study Corridor	Working Alignment
Bellis 1983	Cs, Es		
Cantin 1995a	Cs, Es, G-C	Cs, G-C	Cs, G-C
Cantin 1995b	Cs, Es		
Cochran 1999a	Cs, Es, G-C		
Helmkamp/Javorsek 2001	Cs, Es, G-C	G-C	
Stillwell 1997	Cs, Es, G-C	Cs, G-C	
Stillwell 2000a	Cs, Es		
Stillwell 2000b	Cs, Es	Cs, Es	
Stillwell 2002	Cs, Es	Cs, Es	
Verbka 1994	Cs, Es		
Wappenstein 1999	Cs, Es		

None of these eleven previously conducted archaeological investigations found any evidence of archaeological resources. However, this once again may be due to the small size of these project areas or the previously disturbed nature of some of the project areas.

Another larger archaeological investigation within St. Joseph County is the excavation of the Bellinger Site (12-Sj-6), which was excavated in western St. Joseph County during the early and mid 1990s by the University of Notre Dame and provided new insight into the Goodall Tradition in northern Indiana (Schurr 1996 and 1997). These investigations showed evidence of a regional interaction model for the Early Middle Woodland Goodall Tradition and indicate that the Goodall Tradition is a regional variant of Havana Hopewell Tradition from Illinois (Schurr 1997). Schurr (1997) states that the Bellinger Site is located in a similar topographic setting as other Goodall Tradition mound sites and is situated on a terrace edge adjacent to marshland. Schurr (1997) also notes that Goodall habitation sites are common on dunal islands within the meander belt of the Kankakee River Valley, as well as in the uplands bordering marshes.

An additional area in St. Joseph County where archaeological work has been concentrated is Potato Creek State Recreational Area, which is located just west of the current US 31 Study Area. Several archaeological surveys and one test excavation have been conducted within the park boundaries (Koleszar 1976 and 1977, Waters 2001).

Archaeological Resources

There are six previously recorded archaeological sites in Marshall County and 25 previously recorded archaeological sites in St. Joseph County that are located within the one-mile wide study bands examined for the current US 31 Study Area. The following tables list each archaeological site within these study bands, by county, along with cultural affiliations, site descriptions, and recommendations.

Table 4: Sites within the One-mile Wide Study Bands in Marshall County

Site Number	Cultural Affiliation	Site Description	Recommendations	Comments
12-Mr-219	Unidentified Prehistoric	Habitation	None Given	
12-Mr-221	Unidentified Prehistoric	Habitation	None Given	
12-Mr-234	Unidentified Prehistoric	Habitation	None Given	Destroyed?
12-Mr-235	Unidentified Prehistoric	Habitation	None Given	Partially Destroyed
12-Mr-308	Unidentified Prehistoric	Habitation	None Given	Possibly Destroyed
12-Mr-318	Unidentified Prehistoric	Habitation	None Given	

Table 5: Sites within the One-mile Wide Study Bands in St. Joseph County

Site Number	Cultural Affiliation	Site Description	Recommendations	Comments
12-Sj-26	Historic	Farmstead	Intensive Survey	
12-Sj-235	Middle Woodland	Isolate	No Further Work	

Site Number	Cultural Affiliation	Site Description	Recommendations	Comments
12-Sj-238	Unidentified Prehistoric	Isolate	No Further Work	
12-Sj-239	Historic	Scatter	No Further Work	
12-Sj-250	Unidentified Prehistoric/Historic	Camp and Historic Trading Post	Further Work Recommended	
12-Sj-251	Early Archaic to Late Woodland	Habitation	None Given	Collector Report/ Destroyed
12-Sj-252	Unidentified Prehistoric	Camp	Field Survey and Assessment	Collector Report
12-Sj-253	Middle Woodland	Camp	Field Survey and Assessment	Collector Report and Possibly Destroyed
12-Sj-255	Unidentified Prehistoric	Camp	Field Survey and Assessment	Collector Report
12-Sj-256	Archaic and Early Woodland	Camp	Field Survey and Assessment	Collector Report
12-Sj-260	Middle Woodland (Hopewell)	Isolate	Field Survey and Assessment	Collector Report
12-Sj-265	Woodland	Camp	Field Survey and Assessment	Collector Report
12-Sj-266	Unidentified Prehistoric	Camp	Field Survey and Assessment	Collector Report
12-Sj-270	Historic Native American	Burials	Field Survey and Assessment	Collector Report
12-Sj-271	Paleo-Indian	Isolate	Field Survey and Assessment	Collector Report
12-Sj-272	Unidentified Prehistoric	Camp	Field Survey and Assessment	Collector Report
12-Sj-289	Early Woodland	Isolate	No Further Work	
12-Sj-290	Late Archaic (Lamoka)	Camp	No Further Work	
I-Sj-1	Unidentified Prehistoric	Isolate	No Further Work	
I-Sj-2	Unidentified Prehistoric	Isolate	No Further Work	
I-Sj-3	Late Woodland/Mississippian	Isolate	No Further Work	
I-Sj-4	Late Archaic (Brewerton)	Isolate	No Further Work	

Site Number	Cultural Affiliation	Site Description	Recommendations	Comments
I-Sj-14	Unidentified Prehistoric	Isolate	No Further Work	
I-Sj-20	Early Woodland	Isolate	No Further Work	
I-Sj-21	Unidentified Prehistoric	Isolate	No Further Work	

The following table lists those archaeological sites described in the tables above that are located within the 2000-foot wide study corridors for the preferred Alternatives Cs, Es, and G-C. The table also indicates whether or not a particular archaeological site falls within the working alignment of an alternative.

Table 6: Archaeological Sites within the Study Corridors and Working Alignments

Site Number	Study Corridor Alternative			Working Alignment Alternative		
	Cs	Es	G-C	Cs	Es	G-C
12-Mr-308	X	X	X	X	X	X
12-Mr-318	X	X	X	X	X	X
12-Sj-26		X			X	
12-Sj-270			X			
I-Sj-4		X				
I-Sj-20	X		X			
I-Sj-21	X		X			

In addition, there is one unrecorded archaeological site located east of the town of Lakeville, however, the exact location of this site is unknown and the type of site is unknown. E. H. Young, an artifact collector from approximately 1890 to 1950, reported the existence of this site (William Mangold, IDNR, DHPA, personal communication). Based on a map obtained from the IDNR, DHPA, the site may possibly fall within the 2000-wide study corridor and working alignment of the Alternative G-C.

Cemeteries

There are five known historic cemeteries located within the one-mile wide study bands in Marshall County and five known historic cemeteries located within the one-mile wide study bands in St. Joseph County. These cemeteries are listed in the following tables. Mount Zion Cemetery (also known as County Line Cemetery) is actually split by the Marshall and St. Joseph County line, however, the majority of the cemetery appears to be located within Marshall County. Therefore, this cemetery is included in the Marshall County table. Henson Cemetery is reported to be located in St. Joseph County on the east side of US 31, approximately one half mile south of Roosevelt Road in Section 11, Township 36 North, Range 2 East. However, the exact location of this cemetery is unknown.

Table 7: Known Cemeteries within the Study Bands in Marshall County

Cemetery	Route	Quad	Township	Dates	Interim Report
Fairmount (Vinnedge)	Cs, Es, G-C	La Paz	North	1834-present	#05027
Jacoby	Cs, Es, G-C	Plymouth (unnamed)	Center	1850-1930	#20023
Mount Zion (County Line)	Cs, Es, G-C	La Paz	North	1909-present	#05003
Seltenright	Cs, Es, G-C	La Paz (unmarked)	North	1880's (graves supposedly moved to Fairmount)	
White	Cs, Es, G-C	La Paz (unnamed)	North	1871-1902	#05015

Table 8: Known Cemeteries within the Study Bands in St. Joseph County

Cemetery	Route	Quad	Township	Dates	Comments
Henson	Cs, Es, G-C	Lakeville (unmarked)	Center	1840's-1909	Exact Location Unknown, at Least 11 Graves
Lakeville	Cs, Es, G-C	Lakeville	Union	Unknown	
Mount Calvary	Cs, Es, G-C	Lakeville	Center	Unknown	
Rohrer	Cs, Es, G-C	South Bend East	Center	Unknown	
Southlawn (Palmer Prairie)	Cs, Es, G-C	Lakeville	Center	Active	

The following table lists those cemeteries described in the tables above that are also located within the 2000-foot wide study corridors for the preferred Alternatives Cs, Es, and G-C. None of the cemeteries fall within the working alignments of the preferred alternatives.

Table 9: Known Cemeteries within the Study Corridors

Cemetery	Alternative		
	Cs	Es	G-C
Henson			X
Seltenright	X	X	X
Southlawn (Palmer Prairie)		X	
White	X	X	X

RECOMMENDATIONS

Due to the large size of the US 31 Plymouth to South Bend project area and the fact that the vast majority of the project area has not been surveyed by a professional archaeologist, there is potential for additional archaeological sites to be found in those areas of similar topography to that of the previously recorded archaeological sites in the region. In addition, the project will be impacting previously undisturbed property. Therefore, it is recommended that a Phase Ia archaeological field reconnaissance be conducted on the final preferred alternative of project prior to any construction activities.

This study was conducted per guidelines in "The Management of Archaeological Resources, The Airlie House Report" (McGimsey and Davis 1977), and the Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology's "Guidebook: Indiana Historic Sites and Structures Inventory - Archaeological Sites (1989 edition)". The study is in compliance with recent amendments to the Indiana Historic Preservation Act (IC 14-21-1). The archaeological records check, GIS-based archaeological analysis, and the report and recommendations have been accomplished or directly supervised by a Professional Archaeologist meeting the standards set forth by the U.S. Department of the Interior detailed in 36 CFR Part 61, and 66, and the Secretary of Interior's "Standards and Guidelines for Historic Preservation and Archaeology" (48 FR 44716).

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